

09785539 021604

1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
19
20
21
22
23
24

Handwritten: *USP 7*
9302

CLAIMS:

1. A golf club swing analyzer comprising:
 - a housing;
 - a light emission device configured to emit reference light toward a location in the path of a golf club swung adjacent the housing;
 - a light reception device supported by the housing and configured to receive reference light emitted from the light emission device and reflected from the swung golf club; and
 - discrimination circuitry coupled with the light reception device and configured to distinguish the reflected reference light received from the light emission device from incidental light, the discrimination circuitry being further configured to generate an indication signal responsive to the reception of the reflected reference light.
2. The golf club swing analyzer according to claim 1 wherein the light emission device is configured to emit the reference light in a substantially vertical direction.
3. The golf club swing analyzer according to claim 1 wherein the light emission device is configured to emit the reference light in a plurality of pulses individually having a duration less than the duration of one of the rise time and fall time resulting from the swung golf club blocking incidental light from the light reception device.

1 4. The golf club swing analyzer according to claim 3 wherein
2 the discrimination circuitry is configured to generate a timed pulse
3 responsive to light being received within the light reception device, the
4 timed pulse having a duration greater than the duration of the
5 reference light pulses and less than an individual one of the rise time
6 and fall time.

7
8 5. The golf club swing analyzer according to claim 3 wherein
9 the light emission device is configured to emit the reference light in a
10 substantially vertical direction.

11
12 6. The golf club swing analyzer according to claim 1 further
13 comprising:

14 a processor coupled with the discrimination circuitry and configured
15 to process the indication signal; and

16 a display coupled with the processor and configured to display at
17 least one swing characteristic of the swung golf club.

18
19 7. The golf club swing analyzer according to claim 1 further
20 comprising:

21 a plurality of light emission devices provided in a plurality of
22 predefined positions upon the housing; and

23 a plurality of light reception devices provided in a plurality of
24 corresponding positions upon the housing.

1 8. The golf club swing analyzer according to claim 7 wherein
2 the light emission devices are individually configured to emit reference
3 light in a substantially vertical direction.

4
5 9. The golf club swing analyzer according to claim 1 wherein
6 the swing analyzer is configured for use in the presence of incidental
7 sunlight.

8
9
10
11
12
13
14
15
16
17
18
19
20
21
22
23
24

09783859-021601

10 A golf club swing analyzer comprising:

a housing;

a light emission device configured to emit reference light in a substantially vertical direction toward a location in the path of a golf club swung adjacent the housing, the light emission device being further configured to emit the reference light in a plurality of pulses individually having a duration less than the duration of one of the rise time and fall time resulting from the swung golf club blocking incidental light from the light reception device;

a light reception device supported by the housing and configured to receive reference light emitted from the light emission device and reflected from the swung golf club; and

discrimination circuitry coupled with the light reception device and configured to distinguish the reflected reference light received from the light emission device from incidental light by generating a timed pulse responsive to reference light being received within the light reception device, the timed pulse having a duration greater than the duration of the reference light pulses and less than an individual one of the rise time and fall time.

1 11. A golf swing analysis method comprising:
2 emitting reference light toward a location in the path of a ^{swung} golf
3 club [swung adjacent the housing];
4 receiving reference light reflected from the swung golf club;
5 receiving incidental light;
6 discriminating the reflected reference light and the incidental light
7 following the receivings; and
8 generating at least one indication signal responsive to the
9 discriminating.

10
11 12. The method according to claim 11 further comprising
12 indicating at least one characteristic pertaining to the golf club [swung
13 through the location].

14
15 13. The method according to claim 11 further comprising
16 generating an encoding signal and the emitting being responsive to the
17 encoding signal.

18
19 14. The method according to claim 11 wherein the emitting
20 comprises emitting the reference light in a substantially vertical direction.

21
22 15. The method according to claim 11 wherein the method
23 comprises a golf swing analysis method for use in the presence of
24 incidental sunlight.

1 16. The method according to claim 11 wherein the emitting
2 comprises emitting the reference light in a plurality of pulses individually
3 having a duration less than the duration of one of the rise time and
4 fall time resulting from the swung golf club blocking incidental light
5 from the light reception device.

6
7 17. The method according to claim 16 further comprising
8 generating a timed pulse responsive to reference light being received
9 within the light reception device, the timed pulse having a duration
10 greater than the duration of the reference light pulses and less than an
11 individual one of the rise time and fall time.

12
13 18. The method according to claim 16 wherein the emitting
14 comprises emitting the reference light in a substantially vertical direction.

15
16 19. The method according to claim 11 wherein the emitting
17 comprises emitting using a plurality of emission devices provided in a
18 plurality of predefined positions upon a housing and the receiving
19 comprises receiving using a plurality of reception devices provided in a
20 plurality of predefined positions upon the housing.

21
22 20. The method according to claim 19 wherein the emitting
23 comprises emitting the reference light in a substantially vertical direction.
24